CyberCorps: Scholarship for Service (SFS)

PROGRAM SOLICITATION
NSF 12-585

REPLACES DOCUMENT(S):
NSF 12-531

National Science Foundation

Directorate for Education & Human Resources
Division of Undergraduate Education

Full Proposal Deadline(s) (due by 5 p.m. proposer's local time):

October 12, 2012

IMPORTANT INFORMATION AND REVISION NOTES

The program title has changed.

Restrictions on categories of proposers have been removed.

Allowable costs for programmatic support for Scholarship Track proposals have been increased.

Important Reminders

A revised version of the *NSF Proposal & Award Policies & Procedures Guide* (PAPPG), NSF 11-1, was issued on October 1, 2010 and is effective for proposals submitted, or due, on or after January 18, 2011. Please be advised that the guidelines contained in NSF 11-1 apply to proposals submitted in response to this funding opportunity.

Cost Sharing: The PAPPG has been revised to implement the National Science Board's recommendations regarding cost sharing. Inclusion of voluntary committed cost sharing is prohibited. In order to assess the scope of the project, all organizational resources necessary for the project must be described in the Facilities, Equipment and Other Resources section of the proposal. The description should be narrative in nature and must not include any quantifiable financial information. Mandatory cost sharing will only be required when explicitly authorized by the NSF Director. See the PAPP Guide Part I: *Grant Proposal Guide (GPG)* Chapter II.C.2.g(xi) for further information about the implementation of these recommendations.

Data Management Plan: The PAPPG contains a clarification of NSF's long standing data policy. All proposals must describe plans for data management and sharing of the products of research, or assert the absence of the need for such plans. FastLane will not permit submission of a proposal that is missing a Data Management Plan. The Data Management Plan will be reviewed as part of the intellectual merit or broader impacts of the proposal, or both, as appropriate. Links to data management requirements and plans relevant to specific Directorates, Offices, Divisions, Programs, or other NSF units are available on the NSF website at: http://www.nsf.gov/bfa/dias/policy/dmp.jsp. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

Postdoctoral Researcher Mentoring Plan: As a reminder, each proposal that requests funding to support postdoctoral researchers must include, as a supplementary document, a description of the mentoring activities that will be provided for such individuals. Please be advised that if required, FastLane will not permit submission of a proposal that is missing a Postdoctoral Researcher Mentoring Plan. See Chapter II.C.2.j of the GPG for further information about the implementation of this requirement.

SUMMARY OF PROGRAM REQUIREMENTS

General Information

Program Title:

CyberCorps: Scholarship for Service (SFS)

Synopsis of Program:

Cyberspace has transformed the daily lives of people for the better. The rush to adopt cyberspace, however, has exposed its fragility and vulnerabilities: corporations, agencies, national infrastructure and individuals have been victims of cyber-attacks. In December 2011 the National Science and Technology Council with the cooperation of the NSF advanced a broad, coordinated federal strategic plan for cybersecurity research and education to "change the game," check the misuses of cyber technology, bolster education and training in cybersecurity, establish a science of cybersecurity, and transition promising cybersecurity research into practice. To achieve this strategic plan, the nation needs advanced research within and across disciplines, requiring expertise in human, statistical, mathematical, computational, and computer sciences to develop and transition new concepts and technologies to practice. It also requires an innovative and efficient cybersecurity education system that results in an unrivaled cybersecurity workforce and citizenry capable of advancing America's economic prosperity and national security in

the 21st century.

The CyberCorps: Scholarship for Service (SFS) program seeks proposals that address cybersecurity education and workforce development. The *Scholarship Track* provides funding to award scholarships to students in cybersecurity. In return for their scholarships, recipients will work after graduation for a Federal, State, Local, or Tribal Government organization in a position related to cybersecurity for a period equal to the length of the scholarship. The *Capacity Track* seeks innovative proposals leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals.

Cognizant Program Officer(s):

Please note that the following information is current at the time of publishing. See program website for any updates to the points of contact.

- Victor P. Piotrowski, Lead Program Director, 865.01, telephone: (703) 292-8670, email: vpiotrow@nsf.gov
- Guy-Alain Amoussou, Program Director, 835 N, telephone: (703) 292-8670, email: gamousso@nsf.gov
- Susan Finger, Program Director, 855, telephone: (703) 292-8670, email: sfinger@nsf.gov
- Corby Hovis, Program Director, 835, telephone: (703) 292-8670, email: chovis@nsf.gov

Applicable Catalog of Federal Domestic Assistance (CFDA) Number(s):

- 47.076 --- Education and Human Resources

Award Information

Anticipated Type of Award: Standard Grant or Continuing Grant

Estimated Number of Awards: 20 to 30 consisting of 10-15 Scholarship Track awards and 10-15 Capacity Building Track awards

Anticipated Funding Amount: $23,000,000

In FY 2013 for new awards under this program solicitation. Scholarship awards are usually funded as continuing grants over a five-year period.

Eligibility Information

Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI: 2

An individual may participate as PI, Co-PI, or Senior Personnel in at most one proposal per track in each annual SFS competition.

Proposal Preparation and Submission Instructions

A. Proposal Preparation Instructions

- **Letters of Intent:** Not Applicable
- **Preliminary Proposal Submission:** Not Applicable
- **Full Proposals:**
  - Full Proposals submitted via FastLane: NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) Guidelines apply. The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg.
  - Full Proposals submitted via Grants.gov: NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov Guidelines apply (Note: The NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide)

B. Budgetary Information

- **Cost Sharing Requirements:** Inclusion of voluntary committed cost sharing is prohibited.
- **Indirect Cost (F&A) Limitations:** Not Applicable
- **Other Budgetary Limitations:** Other budgetary limitations apply. Please see the full text of this solicitation for further information.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  October 12, 2012

Proposal Review Information Criteria

Merit Review Criteria: National Science Board approved criteria. Additional merit review considerations apply. Please see the full text of this solicitation for further information.

Award Administration Information

Award Conditions: Standard NSF award conditions apply.

Reporting Requirements: Standard NSF reporting requirements apply.

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I. INTRODUCTION

Cyberspace - a global "virtual" village enabled by hyper-connected digital infrastructures - has transformed the daily lives of people for the better. Families and friends regardless of distance and location can see and talk with one another as if in the same room. Cyber economies create new opportunities. Every sector of society, every discipline, has been transformed by cyberspace. Today it is no surprise that cyberspace is critical to our national priorities in commerce, education, energy, financial services, healthcare, manufacturing, and defense.

The rush to adopt cyberspace, however, has exposed its fragility. The risks of hyper-connectedness have become painfully obvious to all. The privacy of personally identifiable information is often violated on a massive scale by persons unknown. Our competitive advantage is eroded by the exfiltration of significant intellectual property. Law enforcement is hobbled by the difficulty of attribution, national boundaries, and uncertain legal and ethical frameworks. All these concerns now affect the public's trust of cyberspace and the ability of institutions to fulfill their missions.

The National Science and Technology Council with the cooperation of the NSF put forth a 2011 report, Trustworthy Cyberspace: Strategic Plan for the Federal Cybersecurity Research and Development Program. The plan identifies a broad, coordinated research agenda to make cyberspace secure and trustworthy. Research in cybersecurity must "change the game," check the misuses of cyber technology, bolster education and training in cybersecurity, establish a science of cybersecurity, and transition promising cybersecurity research into practice. Also, NSF contributes to multi-agency efforts for the White House's National Initiative for Cybersecurity Education (NICE) program. The goal of both initiatives is to make cyberspace worthy of the public's trust.

This solicitation is supportive of the Office of Science and Technology Policy strategic priorities in securing the cyberspace. It recognizes that cybersecurity education and workforce development form a critical element for a successful implementation and transition to practice of any advances in cybersecurity research and development.

II. PROGRAM DESCRIPTION

Cybersecurity is arguably the most important challenge confronting society in the information age. Neither governments nor individuals are exempt from the ravages of malicious cyber acts upon imperfect technologies. Posing cyber conflict solely in terms of classic attackers and defenders shortchanges the diversity and subtlety of the motivations, incentives, ethics, asymmetries, and strategies of the constituent actors and players in cyberspace. The intelligent adversary, whether human or software, learns and evolves to exploit, disrupt, and overpower. Addressing this challenge requires a coordinated multi-disciplinary approach, contributing to the body of knowledge on cybersecurity in multiple disciplines, and leading to practical, deployable technologies. These efforts require an innovative and efficient cybersecurity education system that will create the unrivaled cybersecurity workforce critical to US national security, continued economic growth and future technological innovation in secure cyberspace.

The SFS program welcomes proposals that address cybersecurity education and workforce development. The Scholarship Track provides funding to award scholarships to students in cybersecurity. In return for their scholarships, recipients will work after graduation for a Federal, State, Local, or Tribal Government organization in a position related to cybersecurity for a period equal to the length of the scholarship. The Capacity Track seeks innovative proposals leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals.

Scholarship Track

The SFS program provides funds to colleges and universities for student scholarships in support of education in areas relevant to cybersecurity. In return for their scholarships, recipients must agree to work after graduation for the Federal Government or, subject to approval of the NSF program office, for a State, Local, or Tribal Government in a position related to cybersecurity for a period equal to the length of the scholarship.

During the scholarship period, the students will participate in meaningful summer internships. Doctoral students may be allowed to replace their summer internship with a research activity following a recommendation from their academic advisor and approval of the NSF program office.

The program's goal is 100% placement, which can only be reached through active cooperation among all parties involved. While SFS student participants are responsible for their own job searches, the SFS program office, through the U.S. Office of Personnel Management (OPM), provides several tools to aid in the job search and organizes an annual job fair. PIs and SFS scholarship students are expected to actively participate with OPM to secure both a summer internship and permanent placement in a Federal, State, Local or Tribal Government organization. A limited number of students may be placed in National Laboratories and Federally Funded Research and Development Centers (FFRDCs). This number is set by the NSF program office each year. (See http://www.firstgov.gov/Agencies.shtml for a list of Federal, State, Local and Tribal Governments; see http://science.energy.gov/sbir/about/national-laboratories-profiles-and-contacts/ for a list of National Laboratories; see http://www.nsf.gov/statistics/ffrdclist/ for a list of FFRDCs.) Materials to assist PIs and scholarship recipients with the placement process are available through the SFS support website: http://www.sfs.opm.gov/.

Students must also participate in other SFS activities such as conferences, workshops, and seminars. These activities are aimed at developing a community of practice that will enhance students' individual and collective skills in an area increasingly important to the security of the United States.

OPM partners with NSF in this program by providing internship and placement assistance to SFS scholarship students, by coordinating students' transition into government employment, by monitoring students' compliance with program requirements, and by assessing whether the program helps meet the personnel needs of the Federal government for information infrastructure protection.

Grantee institutions provide scholarship support to students who compete successfully in a selection process developed by the institution, who meet the SFS eligibility criteria, and who are confirmed as qualified for employment in the Federal Cyber Service by OPM. It is expected that scholarship participants will receive their degree (bachelor's, master's, or doctorate) within two years of the beginning of their scholarships. However, the funding period may be extended to three years for doctoral students, for students receiving both the bachelor's and the master's degree, or for students participating in combined bachelor's and master's degree ("five year") programs.

To be eligible for consideration for an SFS scholarship, a student must be a U.S. citizen. In addition, a student must be one of the following:

- a full-time student within two years of graduation with a bachelor's or master's degree in a coherent formal program that is focused on cybersecurity at an awardee institution, or
- a full-time student within three years of graduation with both the bachelor's and the master's degree, or a student participating in a combined bachelor's and master's degree ("five year") program, or
- a research-based doctoral student within three years of graduation.

Scholarship recipients must also meet selection criteria for Federal employment. Internship placements and final job placements in government organizations typically require high-level security clearances and scholarship recipients are required to undergo the background investigation necessary to obtain such clearances as part of the job and/or internship application process. Each proposing institution must provide a description of its selection criteria and process, and must submit their lists of candidates for SFS scholarships to OPM for final eligibility confirmation.

Applications from institutions which have not previously participated in the SFS program will be considered separately from proposals from renewing institutions. Institutions with existing SFS scholarship programs should clearly indicate that they are applying for a renewal in the title and/or project summary and should provide:

- specific evidence of their current SFS program achievements. Indicators of program success include, but are not limited to, placement statistics, faculty development activities, integration of research and education, mentoring of non-SFS institutions, partnerships with government and relevant employment sectors, and curricular innovations.
- specific plans and/or evidence of program sustainability and/or institutionalization efforts including information on students without SFS scholarships who were placed in government jobs and the retention of SFS scholarship recipients in the federal workforce beyond their initial obligation.

Proposing institutions, regardless of whether they submit new or renewal proposals, are also expected to have clearly articulated management and administrative plans for the following program elements:

- Verification of scholarship candidates' eligibility, including the recipients' academic merit, appropriate professional skills, and enrollment in a cybersecurity program.
- Budgeting for scholarships consisting of stipends, tuition, education-related fees, and other allowances described below. Scholarships are not based on student financial need.
- Provision of academic-year stipends of $20,000 per year for undergraduate students, $25,000 for master's degree students and $30,000 per year for doctoral students. These charges shall be included in the budget under Participant Support costs.

- Provision of scholarship amounts to be used for expenses normally incurred by full-time students at the institution, including tuition and education related fees (does not include items such as meal plans, housing, or parking); a health insurance reimbursement allowance up to $1,200 per year; a professional development allowance of $3,000 for SFS Job Fair and other travel, professional certification etc. and a book allowance of $1,000 per academic year. These shall be included in the budget under Participant Support costs.
- Provision for coordination with OPM for summer internships and permanent job placements for each student. Students are expected to take government internship positions in the summer between their first and second year of scholarship study. Summer internships typically are paid by the hiring agency. Funding for summer internships should not be included in the proposed SFS budget. Doctoral students may be allowed to substitute research activity for their summer internship following the recommendation of their academic advisor and approval of the NSF program office.
- Provisions for tracking the academic progress of students to determine their continued eligibility throughout the academic part of the program. Post-graduation tracking of students to verify that they meet the service obligation will be done by OPM.
- Clearly stated goals and an evaluation plan explaining how the goals will be measured. Evaluation plans should include both a strategy for monitoring the project as it evolves to provide feedback to guide these efforts (formative evaluation) and a strategy for evaluating the effectiveness of the project in achieving its goals and for identifying positive and constructive findings when the project is completed (summative evaluation). The awardees are expected to cooperate with the SFS program-level monitoring and evaluation system.

The above items must be clearly detailed in the Budget Justification section, or other appropriate sections of the proposal.

Scholarship funds awarded to students for stipends, tuition and education related fees, and student support allowances must be listed as Participant Support Costs in the NSF proposal budget (Line F on the FastLane budget and Field E on the Grants.gov Budget). Additional funds up to 15% of the total Participant Support Costs listed in the proposal budget may be requested for activities in other cost categories (e.g., faculty and staff salaries, travel, materials, supplies and the applicable institutional indirect costs) that contribute to the effectiveness of the Scholarship program; any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification.

The Principal Investigator will have overall responsibility for the administration of the institution's award, the management of the project, and interactions with NSF and OPM. The PI and the grantee institution are expected to have or to develop an administrative structure that enables faculty, academic administrators, scholarship recipients, and others involved in the project to interact productively during the award period. The PI is expected to be an integral participant in the educational activities of the SFS project and is required to participate in boot camps, job fairs, symposia and other SFS-sponsored activities.

A proposing institution must provide clearly documented evidence of a strong existing academic program in cybersecurity. Such evidence can include Center of Academic Excellence in Information Assurance Education (CAEIAE, or in Research, CAE-R) designation by the National Security Agency and the Department of Homeland Security; a specialized designation by a nationally recognized organization (for example, in forensics or cyber operations); or equivalent evidence documenting a strong program in cybersecurity.

A focus on recruiting and retaining underrepresented minorities, women, first-generation/low-income students, and/or veterans is strongly encouraged. Application by and partnerships with minority institutions, as recognized by the U.S. Department of Education's list is encouraged (See http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html for a list of qualifying institutions.)

Capacity Track

The SFS Capacity Track seeks innovative proposals leading to an increase in the ability of the United States higher education enterprise to produce cybersecurity professionals. Proposals focusing on capacity building should contribute to the expansion of existing educational opportunities and resources in cybersecurity. This might include but is not limited to the following efforts:

- Establish curricula recommendations for new courses, degree programs, and educational pathways with plans for wide adoption nationally
- Evaluate teaching and learning effectiveness of cybersecurity curricular programs and courses
- Integrate cybersecurity topics into computer science, information technology, engineering and other existing degree programs with plans for pervasive adoption
- Develop virtual laboratories to promote collaboration and resource sharing in cybersecurity education
- Strengthen partnerships between institutions of higher education, government, and relevant employment sectors leading to improved models for the integration of applied research experiences into cybersecurity degree programs
- Evaluate the effectiveness of cybersecurity competitions, games, and other outreach and retention activities

Capacity building projects may vary in size. A typical project will request a total of $200,000 to $300,000 over a two to three year period. A small number of large scale projects may be awarded with total budget limited to $900,000 and duration of three to four years.

All projects, regardless of the scope, should have clearly stated goals and an evaluation plan that explains how they will be measured. Evaluation plans should include both a strategy for monitoring the project as it evolves to provide feedback to guide these efforts (formative evaluation) and a strategy for evaluating the effectiveness of the project in achieving its goals and for identifying positive and constructive findings when the project is completed (summative evaluation). Proposals must clearly explain how their projects will address the previously stated objectives of the program. Project goals must be translated into a set of expected measurable outcomes that can be monitored using quantitative or qualitative approaches or a combination of the two. These outcomes should be used to track progress, guide the project, and evaluate its impact.

Program Evaluation

NSF conducts on-going program monitoring and evaluation to determine how effectively the SFS program is achieving its goals to increase the quantity of new entrants to the federal workforce with the education and training that will enhance the security of critical federal information infrastructure; to increase the national capacity for the education of cybersecurity professionals; to increase national research and development capabilities in critical information infrastructure protection; and to strengthen partnerships between institutions of higher education and relevant employment sectors. In addition to project-specific evaluations, all projects are expected to cooperate with this third party program evaluation and respond to all inquiries, including requests to participate in surveys, interviews and other approaches for collecting evaluation data. Project-specific evaluations should provide indicators of program achievement including, but not limited to, the areas of placement, student achievement, faculty development, curriculum and institutional partnerships.

III. AWARD INFORMATION

The SFS Scholarship Track supports two- to three years of stipends, tuition and allowance for students in the general area of cybersecurity. The scholarships provide academic year stipends of $20,000 per year for undergraduate students, $25,000 for master's degree students and $30,000 per year for doctoral students. In addition, SFS scholarships cover expenses normally incurred by full-time students in the institution, including tuition and education related fees (does not include items such as meal plans, housing, or parking); a health insurance reimbursement allowance up to $1,200 per year; a professional development allowance of $3,000 for SFS Job Fair and other travel, professional certification etc. of and a book allowance of $1,000 per academic year. A typical award might be approximately $3 million for five years supporting five cohort classes of 8 first-year students (year 1), 8 first-year and 8 second-year students (year 2), 8 first-year and 8 second-year students (year 3), 8 first-year and 8 second-year students (year 4), and 8 second-year students (year 5). The above example assumed that no students received three years of support. The total award sizes will depend upon the tuition amount and on the cost of management and development.

SFS Capacity Track projects may vary in size. A typical project will request a total of $200,000 to $300,000 over a two to three year period. A small number of large scale projects may be awarded with total budget limited to $900,000 and duration of three to four years.

NSF anticipates that approximately $23 million will be available for new standard and continuing awards under this program solicitation in FY 2013. Scholarship awards are usually funded as continuing grants over a five-year period. Depending on the quality of proposals received, the program expects to make 10-15 awards in the Scholarship Track and 10-15 awards in the Capacity Track.

IV. ELIGIBILITY INFORMATION

Organization Limit:

The categories of proposers eligible to submit proposals to the National Science Foundation are identified in the Grant Proposal Guide, Chapter I, Section E.

PI Limit:

None Specified

Limit on Number of Proposals per Organization:

None Specified

Limit on Number of Proposals per PI: 2

An individual may participate as PI, Co-PI, or Senior Personnel in at most one proposal per track in each annual SFS competition.

Additional Eligibility Info:

For the Scholarship Track: A proposing institution must provide clearly documented evidence of a strong *existing* program in cybersecurity. Such evidence can include Center of Academic Excellence in Information Assurance Education (CAEIAE, or in Research, CAE-R) designation by the National Security Agency and the Department of Homeland Security; a specialized designation by a nationally recognized organization (for example, in forensics or cyber operations); or equivalent evidence documenting a strong program in cybersecurity.

V. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. Proposal Preparation Instructions

Full Proposal Preparation Instructions: Proposers may opt to submit proposals in response to this Program Solicitation via Grants.gov or via the NSF FastLane system.

- Full proposals submitted via FastLane: Proposals submitted in response to this program solicitation should be prepared and submitted in accordance with the general guidelines contained in the NSF Grant Proposal Guide (GPG). The complete text of the GPG is available electronically on the NSF website at: http://www.nsf.gov/publications/pub_summ.jsp?ods_key=gpg. Paper copies of the GPG may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov. Proposers are reminded to identify this program solicitation number in the program solicitation block on the NSF Cover Sheet For Proposal to the National Science Foundation. Compliance with this requirement is critical to determining the relevant proposal processing guidelines. Failure to submit this information may delay processing.

- Full proposals submitted via Grants.gov: Proposals submitted in response to this program solicitation via Grants.gov should be prepared and submitted in accordance with the NSF Grants.gov Application Guide: A Guide for the Preparation and Submission of NSF Applications via Grants.gov. The complete text of the NSF Grants.gov Application Guide is available on the Grants.gov website and on the NSF website at: (http://www.nsf.gov/publications/pub_summ.jsp?ods_key=grantsgovguide). To obtain copies of the Application Guide and Application Forms Package, click on the Apply tab on the Grants.gov site, then click on the Apply Step 1: Download a Grant Application Package and Application Instructions link and enter the funding opportunity number, (the program solicitation number without the NSF prefix) and press the Download Package button. Paper copies of the Grants.gov Application Guide also may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

In determining which method to utilize in the electronic preparation and submission of the proposal, please note the following:

Collaborative Proposals. All collaborative proposals submitted as separate submissions from multiple organizations must be submitted via the NSF FastLane system. Chapter II, Section D.4 of the Grant Proposal Guide provides additional information on

collaborative proposals.

A Project Data Form must be submitted as part of all proposals. The information on this form is used to direct proposals to appropriate reviewers and to determine the characteristics of projects supported by the Division of Undergraduate Education. FastLane Users: After you have selected the correct Solicitation No., the Project Data Form will appear in the list of required forms for your proposal. Grants.gov Users: Refer to Section VI.5. of the NSF Grants.gov Application Guide for specific instructions on how to submit the DUE Project Data Form.

A Budget Justification of up to a total of three pages must accompany the budget forms and provide details about line items. Proposals that involve subawards should include the justification for the subawards in the three-page total.

Organizations intending to submit simultaneous Collaborative Proposals must carefully follow the instructions for electronic submission specified in the GPG (Chapter II, Section D.4.b). The titles of the related proposals must be identical and must begin with the words "Collaborative Project," and the *combined* budgets of the related proposals should conform to the anticipated individual award sizes specified in Section III ("AWARD INFORMATION") above. These simultaneous Collaborative Proposals will be treated as a single proposal (with a single Project Summary, Project Description, and References Cited) during the review process.

B. Budgetary Information

Cost Sharing: Inclusion of voluntary committed cost sharing is prohibited

Other Budgetary Limitations:

The scholarships provide academic year stipends of $20,000 per year for undergraduate students, $25,000 for master's degree students and $30,000 per year for doctoral students. In addition, SFS scholarships cover expenses normally incurred by full-time students at the institution, including tuition and education related fees (does not include items such as meal plans, housing, or parking); a health insurance reimbursement allowance up to $1,200 per year; a professional development allowance of $3,000 for SFS Job Fair and other travel, professional certification etc. and a book allowance of $1,000 per academic year.

The Capacity Track projects may vary in size. A typical capacity building project will request a total of $200,000 to $300,000 over a two to three year period. A small number of large scale projects may be awarded with total budget limited to $900,000 and duration of three to four years.

In the Scholarship Track, funds awarded to students for stipends, tuition and education related fees, and student support allowances must be listed as Participant Support Costs in the NSF proposal budget (Line F on the FastLane budget and Field E on the Grants.gov Budget). Additional funds up to 20% of the total Participant Support Costs listed in the proposal budget may be requested for activities in other cost categories (e.g., salaries, travel, materials, supplies and applicable indirect costs) that contribute to the effectiveness of the Scholarship program; any such costs must be listed under the appropriate NSF budget categories and must be explained in the Budget Justification.

C. Due Dates

- **Full Proposal Deadline(s)** (due by 5 p.m. proposer's local time):

  October 12, 2012

D. FastLane / Grants.gov Requirements

- **For Proposals Submitted Via FastLane:**

  Detailed technical instructions regarding the technical aspects of preparation and submission via FastLane are available at: https://www.fastlane.nsf.gov/a1/newstan.htm. For FastLane user support, call the FastLane Help Desk at 1-800-673-6188 or e-mail fastlane@nsf.gov. The FastLane Help Desk answers general technical questions related to the use of the FastLane system. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this funding opportunity.

  Submission of Electronically Signed Cover Sheets. The Authorized Organizational Representative (AOR) must electronically sign the proposal Cover Sheet to submit the required proposal certifications (see Chapter II, Section C of the Grant Proposal Guide for a listing of the certifications). The AOR must provide the required electronic certifications within five working days following the electronic submission of the proposal. Further instructions regarding this process are available on the FastLane Website at: https://www.fastlane.nsf.gov/fastlane.jsp.

- **For Proposals Submitted Via Grants.gov:**

  Before using Grants.gov for the first time, each organization must register to create an institutional profile. Once registered, the applicant's organization can then apply for any federal grant on the Grants.gov website. Comprehensive information about using Grants.gov is available on the Grants.gov Applicant Resources webpage: http://www07.grants.gov/applicants/app_help_reso.jsp. In addition, the NSF Grants.gov Application Guide provides additional technical guidance regarding preparation of proposals via Grants.gov. For Grants.gov user support, contact the Grants.gov Contact Center at 1-800-518-4726 or by email: support@grants.gov. The Grants.gov Contact Center answers general technical questions related to the use of Grants.gov. Specific questions related to this program solicitation should be referred to the NSF program staff contact(s) listed in Section VIII of this solicitation.

  Submitting the Proposal: Once all documents have been completed, the Authorized Organizational Representative (AOR) must submit the application to Grants.gov and verify the desired funding opportunity and agency to which the application is submitted. The AOR must then sign and submit the application to Grants.gov. The completed application will be transferred to the NSF FastLane system for further processing.

VI. NSF PROPOSAL PROCESSING AND REVIEW PROCEDURES

Proposals received by NSF are assigned to the appropriate NSF program where they will be reviewed if they meet NSF proposal preparation requirements. All proposals are carefully reviewed by a scientist, engineer, or educator serving as an NSF Program Officer, and usually by three to ten other persons outside NSF who are experts in the particular fields represented by the proposal. These reviewers are selected by Program Officers charged with the oversight of the review process. Proposers are invited to suggest names of persons they believe are especially well qualified to review the proposal and/or persons they would prefer not review the proposal. These suggestions may serve as one source in the reviewer selection process at the Program Officer's discretion. Submission of such names, however, is optional. Care is taken to ensure that reviewers have no conflicts of interest with the proposal.

A. NSF Merit Review Criteria

All NSF proposals are evaluated through use of the two National Science Board (NSB)-approved merit review criteria: intellectual merit and the broader impacts of the proposed effort. In some instances, however, NSF will employ additional criteria as required to highlight the specific objectives of certain programs and activities.

The two NSB-approved merit review criteria are listed below. The criteria include considerations that help define them. These considerations are suggestions and not all will apply to any given proposal. While proposers must address both merit review criteria, reviewers will be asked to address only those considerations that are relevant to the proposal being considered and for which the reviewer is qualified to make judgments.

What is the intellectual merit of the proposed activity?
How important is the proposed activity to advancing knowledge and understanding within its own field or across different fields? How well qualified is the proposer (individual or team) to conduct the project? (If appropriate, the reviewer will comment on the quality of the prior work.) To what extent does the proposed activity suggest and explore creative, original, or potentially transformative concepts? How well conceived and organized is the proposed activity? Is there sufficient access to resources?

What are the broader impacts of the proposed activity?
How well does the activity advance discovery and understanding while promoting teaching, training, and learning? How well does the proposed activity broaden the participation of underrepresented groups (e.g., gender, ethnicity, disability, geographic, etc.)? To what extent will it enhance the infrastructure for research and education, such as facilities, instrumentation, networks, and partnerships? Will the results be disseminated broadly to enhance scientific and technological understanding? What may be the benefits of the proposed activity to society?

Examples illustrating activities likely to demonstrate broader impacts are available electronically on the NSF website at: http://www.nsf.gov/pubs/gpg/broaderimpacts.pdf.

Mentoring activities provided to postdoctoral researchers supported on the project, as described in a one-page supplementary document, will be evaluated under the Broader Impacts criterion.

Additional Solicitation Specific Review Criteria

Proposals submitted to the SFS program will be evaluated with careful attention to the following:

- A project plan and tangible metrics described to evaluate the success of the proposed project
- The extent to which the project fulfills cybersecurity education and workforce needs with broad impact across the cyber education community
- The quality of education and research in cybersecurity at the institution and the extent to which they are integrated
- The quality of applied experiences to increase students understanding of cybersecurity
- The extent to which cybersecurity faculty members are integrally involved with the scholarship students and working with the students as a cohort
- The degree to which investigators interact with the cybersecurity community to share knowledge and experience in developing and evaluating innovations
- Institutional sustainability and evidence of a reasonable expectation of persistent effects of the grant-funded work consistent with the aims of the project

NSF staff also will give careful consideration to the following in making funding decisions:

Integration of Research and Education
One of the principal strategies in support of NSF's goals is to foster integration of research and education through the programs, projects, and activities it supports at academic and research institutions. These institutions provide abundant opportunities where individuals may concurrently assume responsibilities as researchers, educators, and students and where all can engage in joint efforts that infuse education with the excitement of discovery and enrich research through the diversity of learning perspectives.

Integrating Diversity into NSF Programs, Projects, and Activities
Broadening opportunities and enabling the participation of all citizens -- women and men, underrepresented minorities, and persons with disabilities -- is essential to the health and vitality of science and engineering. NSF is committed to this principle of diversity and deems it central to the programs, projects, and activities it considers and supports.

B. Review and Selection Process

Proposals submitted in response to this program solicitation will be reviewed by Panel Review.

Reviewers will be asked to formulate a recommendation to either support or decline each proposal. The Program Officer assigned to manage the proposal's review will consider the advice of reviewers and will formulate a recommendation.

After scientific, technical and programmatic review and consideration of appropriate factors, the NSF Program Officer recommends to the cognizant Division Director whether the proposal should be declined or recommended for award. NSF is striving to be able to tell applicants whether their proposals have been declined or recommended for funding within six months. The time interval begins on the deadline or target date, or receipt date, whichever is later. The interval ends when the Division Director accepts the Program Officer's recommendation.

A summary rating and accompanying narrative will be completed and submitted by each reviewer. In all cases, reviews are treated as confidential documents. Verbatim copies of reviews, excluding the names of the reviewers, are sent to the Principal Investigator/Project Director by the Program Officer. In addition, the proposer will receive an explanation of the decision to award or decline funding.

In all cases, after programmatic approval has been obtained, the proposals recommended for funding will be forwarded to the Division of Grants and Agreements for review of business, financial, and policy implications and the processing and issuance of a grant or other agreement. Proposers are cautioned that only a Grants and Agreements Officer may make commitments, obligations or awards on behalf of NSF or authorize the expenditure of funds. No commitment on the part of NSF should be inferred from technical or budgetary discussions with a NSF Program Officer. A Principal Investigator or organization that makes financial or personnel commitments in the absence of a grant or cooperative agreement signed by the NSF Grants and Agreements Officer does so at their own risk.

VII. AWARD ADMINISTRATION INFORMATION

A. Notification of the Award

Notification of the award is made to *the submitting organization* by a Grants Officer in the Division of Grants and Agreements. Organizations whose proposals are declined will be advised as promptly as possible by the cognizant NSF Program administering the program. Verbatim copies of reviews, not including the identity of the reviewer, will be provided automatically to the Principal Investigator. (See Section VI.B. for additional information on the review process.)

B. Award Conditions

An NSF award consists of: (1) the award letter, which includes any special provisions applicable to the award and any numbered amendments thereto; (2) the budget, which indicates the amounts, by categories of expense, on which NSF has based its support (or otherwise communicates any specific approvals or disapprovals of proposed expenditures); (3) the proposal referenced in the award letter; (4) the applicable award conditions, such as Grant General Conditions (GC-1); * or Research Terms and Conditions * and (5) any announcement or other NSF issuance that may be incorporated by reference in the award letter. Cooperative agreements also are administered in accordance with NSF Cooperative Agreement Financial and Administrative Terms and Conditions (CA-FATC) and the applicable Programmatic Terms and Conditions. NSF awards are electronically signed by an NSF Grants and Agreements Officer and transmitted electronically to the organization via e-mail.

*These documents may be accessed electronically on NSF's Website at http://www.nsf.gov/awards/managing/award_conditions.jsp?org=NSF. Paper copies may be obtained from the NSF Publications Clearinghouse, telephone (703) 292-7827 or by e-mail from nsfpubs@nsf.gov.

More comprehensive information on NSF Award Conditions and other important information on the administration of NSF awards is contained in the NSF *Award & Administration Guide* (AAG) Chapter II, available electronically on the NSF Website at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=aag.

C. Reporting Requirements

For all multi-year grants (including both standard and continuing grants), the Principal Investigator must submit an annual project report to the cognizant Program Officer at least 90 days before the end of the current budget period. (Some programs or awards require more frequent project reports). Within 90 days after expiration of a grant, the PI also is required to submit a final project report, and a project outcomes report for the general public.

Failure to provide the required annual or final project reports, or the project outcomes report will delay NSF review and processing of any future funding increments as well as any pending proposals for that PI. PIs should examine the formats of the required reports in advance to assure availability of required data.

PIs are required to use NSF's electronic project-reporting system, available through FastLane, for preparation and submission of annual and final project reports. Such reports provide information on activities and findings, project participants (individual and organizational), publications, and other specific products and contributions. PIs will not be required to re-enter information previously provided, either with a proposal or in earlier updates using the electronic system. Submission of the report via FastLane constitutes certification by the PI that the contents of the report are accurate and complete. The project outcomes report must be prepared and submitted using Research.gov. This report serves as a brief summary, prepared specifically for the public, of the nature and outcomes of the project. This report will be posted on the NSF website exactly as it is submitted by the PI.

VIII. AGENCY CONTACTS

Please note that the program contact information is current at the time of publishing. See program website for any updates to the points of contact.

General inquiries regarding this program should be made to:

- Victor P. Piotrowski, Lead Program Director, 865.01, telephone: (703) 292-8670, email: vpiotrow@nsf.gov
- Guy-Alain Amoussou, Program Director, 835 N, telephone: (703) 292-8670, email: gamousso@nsf.gov
- Susan Finger, Program Director, 855, telephone: (703) 292-8670, email: sfinger@nsf.gov

- Corby Hovis, Program Director, 835, telephone: (703) 292-8670, email: chovis@nsf.gov

For questions related to the use of FastLane, contact:

- FastLane Help Desk, telephone: 1-800-673-6188; e-mail: fastlane@nsf.gov.

For questions relating to Grants.gov contact:

- Grants.gov Contact Center: If the Authorized Organizational Representatives (AOR) has not received a confirmation message from Grants.gov within 48 hours of submission of application, please contact via telephone: 1-800-518-4726; e-mail: support@grants.gov.

IX. OTHER INFORMATION

The NSF Website provides the most comprehensive source of information on NSF Directorates (including contact information), programs and funding opportunities. Use of this Website by potential proposers is strongly encouraged. In addition, National Science Foundation Update is a free e-mail subscription service designed to keep potential proposers and other interested parties apprised of new NSF funding opportunities and publications, important changes in proposal and award policies and procedures, and upcoming NSF Regional Grants Conferences. Subscribers are informed through e-mail when new publications are issued that match their identified interests. Users can subscribe to this service by clicking the "Get NSF Updates by Email" link on the NSF web site.

Grants.gov provides an additional electronic capability to search for Federal government-wide grant opportunities. NSF funding opportunities may be accessed via this new mechanism. Further information on Grants.gov may be obtained at http://www.grants.gov.

ABOUT THE NATIONAL SCIENCE FOUNDATION

The National Science Foundation (NSF) is an independent Federal agency created by the National Science Foundation Act of 1950, as amended (42 USC 1861-75). The Act states the purpose of the NSF is "to promote the progress of science; [and] to advance the national health, prosperity, and welfare by supporting research and education in all fields of science and engineering."

NSF funds research and education in most fields of science and engineering. It does this through grants and cooperative agreements to more than 2,000 colleges, universities, K-12 school systems, businesses, informal science organizations and other research organizations throughout the US. The Foundation accounts for about one-fourth of Federal support to academic institutions for basic research.

NSF receives approximately 55,000 proposals each year for research, education and training projects, of which approximately 11,000 are funded. In addition, the Foundation receives several thousand applications for graduate and postdoctoral fellowships. The agency operates no laboratories itself but does support National Research Centers, user facilities, certain oceanographic vessels and Arctic and Antarctic research stations. The Foundation also supports cooperative research between universities and industry, US participation in international scientific and engineering efforts, and educational activities at every academic level.

Facilitation Awards for Scientists and Engineers with Disabilities provide funding for special assistance or equipment to enable persons with disabilities to work on NSF-supported projects. See Grant Proposal Guide Chapter II, Section D.2 for instructions regarding preparation of these types of proposals.

The National Science Foundation has Telephonic Device for the Deaf (TDD) and Federal Information Relay Service (FIRS) capabilities that enable individuals with hearing impairments to communicate with the Foundation about NSF programs, employment or general information. TDD may be accessed at (703) 292-5090 and (800) 281-8749, FIRS at (800) 877-8339.

The National Science Foundation Information Center may be reached at (703) 292-5111.

The National Science Foundation promotes and advances scientific progress in the United States by competitively awarding grants and cooperative agreements for research and education in the sciences, mathematics, and engineering.

To get the latest information about program deadlines, to download copies of NSF publications, and to access abstracts of awards, visit the NSF Website at http://www.nsf.gov

- **Location:** 4201 Wilson Blvd. Arlington, VA 22230
- **For General Information** (NSF Information Center)**:** (703) 292-5111
- **TDD (for the hearing-impaired):** (703) 292-5090
- **To Order Publications or Forms:**

  Send an e-mail to: nsfpubs@nsf.gov

  or telephone: (703) 292-7827
- **To Locate NSF Employees:** (703) 292-5111

PRIVACY ACT AND PUBLIC BURDEN STATEMENTS

The information requested on proposal forms and project reports is solicited under the authority of the National Science Foundation Act of 1950, as amended. The information on proposal forms will be used in connection with the selection of qualified proposals; and project reports submitted by awardees will be used for program evaluation and reporting within the Executive Branch and to Congress. The information requested may be disclosed to qualified reviewers and staff assistants as part of the proposal review process; to proposer institutions/grantees to provide or obtain data regarding the proposal review process, award decisions, or the administration of awards; to government contractors, experts, volunteers and researchers and educators as necessary to complete assigned work; to other government agencies or other entities needing information regarding applicants or nominees as part of a joint application review process, or in order to coordinate programs or policy; and to another Federal agency, court, or party in a court or Federal administrative proceeding if the government is a party. Information about Principal Investigators may be added to the Reviewer file and used to select potential candidates to serve as peer reviewers or advisory committee members. See Systems of Records, NSF-50, "Principal Investigator/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004), and NSF-51, "Reviewer/Proposal File and Associated Records," 69 Federal Register 26410 (May 12, 2004). Submission of the information is voluntary. Failure to provide full and complete information, however, may reduce the possibility of receiving an award.

An agency may not conduct or sponsor, and a person is not required to respond to, an information collection unless it displays a valid Office of Management and Budget (OMB) control number. The OMB control number for this collection is 3145-0058. Public reporting burden for this collection of information is estimated to average 120 hours per response, including the time for reviewing instructions. Send comments regarding the burden estimate and any other aspect of this collection of information, including suggestions for reducing this burden, to:

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